

**SUPERCRITICAL COMPOSITIONS FOR REMOVAL
OF ORGANIC MATERIAL AND METHODS OF USING SAME**

Abstract of the Disclosure

5 A method for removing organic material in the fabrication of structures includes providing a substrate assembly having an exposed organic material and removing at least a portion of the exposed organic material using a composition having at least one component in a supercritical state. The composition includes an oxidizer selected from the group of sulfur trioxide (SO_3), sulfur dioxide (SO_2), nitrous oxide (N_2O), NO, NO_2 , ozone (O_3), hydrogen peroxide (H_2O_2), F_2 , Cl_2 , Br_2 ,
10 and oxygen (O_2). For example, the exposed organic material may be selected from the group of resist material, photoresist residue, UV-hardened resist, X-ray hardened resist, carbon-fluorine containing polymers, plasma etch residues, and organic impurities from other processes. The at least one component in a supercritical state
15 may be an oxidizer selected from the group of sulfur trioxide (SO_3), sulfur dioxide (SO_2), nitrous oxide (N_2O), NO, NO_2 , ozone (O_3), hydrogen peroxide (H_2O_2), F_2 , Cl_2 , Br_2 , and oxygen (O_2); preferably sulfur trioxide. Further, the composition may include a supercritical component in a supercritical state selected from the group of carbon dioxide (CO_2), ammonia (NH_3), H_2O , nitrous oxide (N_2O), carbon monoxide (CO), inert gases (e.g., nitrogen (N_2), helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe); preferably carbon dioxide. Further, organic material removal compositions for performing such methods are provided.

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DATE OF DEPOSIT: AUGUST 28, 1998
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